Dental Public Health Activities & Practices

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SECTION I: PRACTICE OVERVIEW

Name of the Dental Public Health Activity:

The Neighborhood Outreach Action for Health (NOAH) Program: Integrated Medical and Dental Health in Primary Care

Public Health Functions:

Policy Development – Collaboration and Partnership for Planning and Integration
Assurance – Population-based Interventions
Assurance – Building Linkages and Partnerships for Interventions
Assurance – Building State and Community Capacity for Interventions
Assurance – Access to Care and Health System Interventions

Healthy People 2010 Objectives:

21-1 Reduce dental caries experience in children
21-2 Reduce untreated dental decay in children and adults
21-3 Increase adults with teeth who have never lost a tooth
21-8 Increase sealants for 8 year-olds' first molars & 14 year-olds' first & second molars
21-10 Increase utilization of oral health system
21-12 Increase preventive dental services for low-income children and adolescents
21-13 Increase school-based health centers with oral health component
21-14 Increase community health centers & local health departments with oral health component

State:	**Federal Region:**	**Key Words for Searches:**
Arizona	Southwest Region IX	Oral health, integration, medical care, dental care, primary care, prevention, affiliated practice hygienist

Abstract:

Pediatric primary care physicians and nurse practitioners are uniquely positioned to change the perception that oral health is less important than and separate from general health. In response to the positive impact of oral health on overall well-being, the Scottsdale Healthcare's Neighborhood Outreach Action for Health (NOAH) Program developed a care model that meets oral health needs and integrates oral health into primary care. In 2006, a dental clinic was built and added to each of NOAH's two existing medical service sites: a community-based neighborhood clinic and a school-based clinic (both have been in operation since 1997). Oral health assessment, care planning and treatment are now included in NOAH's well child care, a service that is provided at the integrated medical and dental clinics. The care model emphasizes prevention of tooth decay for children through frequent dental hygiene services, fluoride varnish applications, and dental sealants delivered by an affiliated practice dental hygienist, a cost-effective approach that produces desirable oral health outcomes. During the school year 2008-09, NOAH has provided ~2,500 preventive dental visits at an estimated cost of $136,200 ($54 per preventive dental visit). Preliminary analysis of the first year of the program's dental data reveals that 89% of NOAH children receiving preventive services had no evidence of new tooth decay after one year. Program administrators are confident that this model of integrated service delivery will improve the health of low-income, uninsured children who are at high risk and experience more tooth decay.

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SECTION II: PRACTICE DESCRIPTION

History of the Practice:

Scottsdale, Arizona, is known as an affluent, resort community and rarely evokes images of poverty, hunger and need. However, like many urban Arizona communities, Scottsdale is home to a large immigrant population drawn to job opportunities in the construction and support service industries. Conservative estimates predict that more than 3,000 immigrant families live and work in greater Scottsdale. To meet the health care needs of this large, primarily uninsured immigrant population, Scottsdale Healthcare (a non-profit hospital system), through its Neighborhood Outreach Action for Health (NOAH) Program, operates two health centers year-round. One is a community-based neighborhood clinic and the other is a school-based clinic. These two health centers have provided primary care services since 1997. These centers are staffed by family medicine physicians and pediatric nurse practitioners, who provide health services to more than 3,200 uninsured pediatric and adult patients each year.

The NOAH Program first delivered oral health services in 2001. NOAH medical providers began screening for oral disease and making dental referrals. At that time, the NOAH Program funded approximately 400 dental visits annually for children through a contractual partnership with a local community dental care center. Families were provided with transportation from the NOAH clinics to the dental care center. NOAH provided uninsured children close to $100,000 of dental services annually during the early years. An additional $6,000 was spent annually on transportation for dental care.

Children continued to present with dental caries (tooth decay) at the NOAH health care centers. Oral screening data from early years shows that despite significant expenditures on restorative dental care, more than half of the NOAH children required subsequent urgent or immediate restorative dental care services. NOAH medical providers recognized that early and ongoing care was needed to prevent tooth decay and maintain oral health, even after restorative care. The providers wanted to ensure that children receive dental hygiene care, oral health education, and proven preventive therapies.

Subsequently, the NOAH medical providers placed greater emphasis on oral screenings and implemented a more family-centered approach to oral health education during routine well child exams. Mothers were shown how to examine an infant's mouth and educated on oral hygiene care and good nutrition. Babies were seen every three months for fluoride varnish application through age two. Oral health videos were added to the patient education library in the family waiting areas.

In spring 2006, the NOAH Program built two new dental clinics. A dental clinic was added adjacent to the medical clinic in each of the two NOAH health care centers. Families were surprised to leave a medical exam room and enter the dental care clinic to complete their child's health care visit. The NOAH Program provides integrated primary care for children that include dental preventive and restorative services at both health care centers.

Justification of the Practice:

Tooth decay is the single most common chronic disease of childhood occurring five to eight times more frequently than asthma. Tooth decay is also a chronic progressive disease that can affect health in adulthood. Research links oral health with diabetes, cardiovascular disease, premature and low birth weight babies, and failure to thrive. In controlled studies, periodontal therapy with a focus on non-surgical oral hygiene treatment is shown to improve health outcomes. Root planing and full-mouth scaling are shown to improve glycemic control in patients with Type II diabetes (Kiran et al., 2005). Early treatment of "gum" inflammation/infection with oral hygiene care throughout pregnancy is associated with reduced risk of preterm births and low birth weight babies (Lopez, et al. 2005).

Arizona children in grades kindergarten through three, on average, have five teeth affected by tooth decay. This number is three times higher than the national average. The NOAH population is especially vulnerable with a high number of children who are from low-income families and are Hispanic. Dental caries makes the NOAH health centers' "top 10 list of diagnoses" every year. Early prevention is needed; oral health assessment and interventions are needed to improve overall

health outcomes. For the NOAH Program, medical and dental health care will be integrated in the delivery of primary care for children at risk.

References:
1. Kiran M, Arkpak N, Unsal E, Erdogan MF. 2005. The effect of improved periodontal health on metabolic control in type 2 diabetes mellitus. Journal of Clinical Periodontology 32:266–272.
2. Lopez NJ, Da Silva I, Ipinza J, Gutiérrez J. 2005. Periodontal therapy reduces the rate of preterm low birth weight in women with pregnancy-associated gingivitis. Journal of Periodontology 76(11 Suppl):2144-53.

Inputs, Activities, Outputs and Outcomes of the Practice:

The Neighborhood Outreach Action for Health (NOAH) Program provides an integrated model offering primary care services that include well child care, dental care, obstetric care, and vaccinations.

Facilities

NOAH provides an integrated medical and dental clinic setting. NOAH operates two health care centers in Greater Metropolitan Phoenix Area in Arizona. Each center houses a medical clinic with two examination rooms and a dental clinic with two dental treatment chairs and x-ray units. The school-based center is located at the Palomino Elementary School in Phoenix and the community-based, school-linked Paiute Neighborhood Center is located in Scottsdale.

Staff

Each NOAH center is staffed by a physician, a part-time pediatric nurse practitioner, an affiliated practice dental hygienist, and support staff. Paid contract and volunteer dentists staffed each center on a part-time basis in the early years. Starting in 2009, a contract part-time general dentist staffs the Palomino school-based dental clinic one day per week; another dentist staffs the Paiute neighborhood dental clinic 2 days per month. In addition, one full-time and one part-time affiliated practice dental hygienists deliver preventive services at both the Palomino and Paiute dental clinics.

Affiliated Practice Dental Hygienist

Typically, practice laws require a dentist to provide direct or general supervision of a dental hygienist, as well as require an examination before any treatment services can be delivered by a dental hygienist. However, the Arizona Dental Hygiene Affiliated Practice Act provided a new opportunity for the NOAH Program to develop a cost-effective dental care model.

Legislation HB-2214 that passed in late 2004, allowed for a registered dental hygienist to provide dental hygiene services under an affiliated practice relationship, as prescribed in Arizona Revised Statutes section §32-1289 and §32-1281. The legislation allows a public health agency or institution, or a public or private school authority, to employ a dental hygienist to perform dental hygiene procedures under either general or direct supervision, or to enter into a contract for dental hygiene services with licensees who have entered into an affiliated practice relationship with a licensed dentist. A.R.S. §32-1289 and §32-1281 limit the scope of practice for affiliated practice to children aged 18 and under. This change in Arizona's practice laws has enabled dental hygienists to initiate treatment based on their assessment of patient's needs without specific authorization of a dentist, to treat the patient without the direct supervision of a dentist, and to maintain a provider-patient relationship.

The NOAH Program was the first in Arizona to employ an affiliated practice dental hygienist and begin integrating dental hygiene services into traditional primary care. The integration of an affiliated practice dental hygienist in school-based and school-linked primary care settings is a viable strategy and an innovative approach to address health disparities and improve access to care.

Population Served

The NOAH Program serves the uninsured and underinsured children and their immediate family members (their parents and older/younger siblings) in the Scottsdale and Paradise Valley School districts. In October 2009, new changes to the AZ dental statutes will lift the age restriction for dental hygiene affiliated practice. In response, the NOAH Program is planning to provide oral

health care up to the age of 21. Since the NOAH Program became a Medicaid (Arizona Healthcare Cost Containment System) provider in 2009, there is also planning to broaden services to address community-wide oral health needs.

Dental Services

Paid contract and volunteer dentists provide restorative care services including extractions, stainless steel crowns, fillings, and root canal therapy. Services are delivered both in the NOAH health centers' dental clinics and in private dental practice offices in the community.

The affiliated practice dental hygienist performs dental hygiene services within the terms of the affiliated practice relationship. Those duties include but are not limited to:

- examine the oral cavity and surrounding structures
- provide periodontal examination
- compile case histories
- expose and process dental radiographs
- record clinical findings
- deliver dental prophylaxis, scaling and subgingival curettage
- provide all functions authorized and deemed appropriate for dental assistants
- apply preventive and therapeutic agents used in relation to dental hygiene procedures for the hard and soft tissues of the mouth.

New changes to the affiliated practice law in 2009 will require that all patients be seen by a licensed dentist within twelve months of initial treatment by the dental hygienist.

The Palomino school-based dental clinic operates five days a week. Four days are devoted to delivering preventive dental services by the affiliated practice dental hygienist; one day a week is scheduled for the dentist to deliver restorative dental care. The Paiute neighborhood dental clinic provides dental hygiene services 2-3 days per week and restorative dental care by the dentist one day every other week. Children seen in one NOAH dental clinic are at times scheduled in the other clinic for an earlier appointment or for specialized procedures provided by the dentist in the location (e.g., root canal therapy). This care model has been cost-effective.

Dental and Medical Integration in Primary Care

The affiliated practice hygienists and dental assistants work very closely with the members of the medical staff to integrate oral health into primary care provided at the NOAH health care centers (such as well child care, disease management, and health education).

Plans are underway to expand integration of oral health into prenatal care and diabetes disease management in the NOAH health centers. In addition, newly added teledentistry technology will be used to increase capacity and efficiency to coordinate dental care and enhance community outreach.

Outputs

NOAH health centers consistently serve more than 2,600 children and their family members, delivering more than 6,000 primary care visits annually. The primary care services include medical and dental services (e.g., examinations, diagnosis of health problems, well child checks, sports physicals, preventive and restorative dental care, prescriptions, parent counseling, etc.). The top primary care services delivered by NOAH health centers relate to:

- Preventive Dental
- Restorative Dental
- Well Child Care
- Prenatal Care
- Diabetes Management
- Immunizations
- Well Woman Care
- Hypertension
- Asthma
- Upper Respiratory Infection

For the school year 2008-09, the NOAH Program provided approximately 2,500 preventive dental visits. The affiliated practice hygienists and dental assistants provide patient and family oral

health education, dental hygiene services, fluoride varnish applications, and instructions for home fluoride treatment, toothbrushing and use of fluoride-containing toothpaste to maintain optimal oral health. Most children are seen every six months but some require more aggressive scheduling for treatment to prevent tooth decay.

Outcomes

NOAH administrators are currently looking at health outcome data from the first full year of implementing the integrated medical-dental care model. Among the children receiving primary care at the NOAH centers during the first year of the integrated care model, more than 80% have up-to-date immunizations, obtained preventive well child care, and received oral health care services.

Preliminary analysis of data from a 20-month period (January 2007 through August 2008) showed improved oral health outcomes for the 232 children who participated in a full year of preventive oral health care. The analysis grouped the children into three levels of tooth decay experience based on these criteria:

High tooth decay experience: Child presented at the new patient visit with active areas of tooth decay requiring treatment, active tooth decay on teeth that will exfoliate soon, or arrested tooth decay.

Medium tooth decay experience: Child presented at the new patient visit with existing restorations from past decay experiences and has no active/arrested decay.

Low tooth decay experience: Child presented at the new patient visit with no restorations from past tooth decay experiences and has no active/arrested decay.

Of the 232 children receiving a year's preventive dental services, 61% initially presented with a high experience of tooth decay, 16% with moderate experience of tooth decay, and 23% with a low experience of tooth decay. Preliminary analysis showed:

- Of the children with high experience of tooth decay, approximately 71% received three to four fluoride varnish applications in the first year and 62% reported daily home fluoride use. At the end of the first year of integrated care, 83% showed no evidence of any new decay.
- Of the children with moderate experience of tooth decay, approximately 78% received three to four fluoride varnish applications and 81% reported daily home fluoride use in the first year. All of the children showed no evidence of new decay after one year.
- Of the children with low experience of tooth decay, approximately 82% received three to four fluoride varnish applications and 73% reported daily home fluoride use in the first year. At the end of the first year, 96% were free of new tooth decay.
- Overall, 89% of the children enrolled in the preventive program for a full year showed no evidence of new tooth decay. Seventy-two percent (72%) visited a NOAH dental clinic for cleaning and fluoride varnish application three to four times during that year and 69% reported using home fluoride daily.

A plan to use a higher level of evaluation to determine oral health outcomes, which may include the use of risk assessment tools such as the Caries-Risk Assessment Tool (CAT) or Caries Management By Risk Assessment (CAMBRA), is being reviewed.

Budget Estimates and Formulas of the Practice:

The annual NOAH Oral Health Program cost items and budget estimates are displayed below:

Cost Items	Annual Budget $
Salary Expense	178,618
Contract Dentists	76,800
Dental Supplies Prevention	15,000
Dental Supplies Restorative/Med Gases	15,600
Procurement Card	300

Food	120
Cleaning – Disposal	120
Office Supplies – General	1,200
Office Supplies - Comp	750
Minor Equipment	1,500
Forms	2,200
Other Supplies	750
R&M Repairs/Services Internal	2,000
Cleaning Service	3,200
Depreciation – Major	1,600
Annual Expense Total	**$ 299,758**

Lessons Learned and/or Plans for Improvement:

NOAH administrators are investigating care models that further enhance clinic services and focus on prevention. Many children that come to the NOAH health centers for care are at high risk (e.g., parental drug use and mental health problems). It is estimated that nearly half of all parents express concerns related to parenting and child development. With evidence showing that early intervention and education plays a pivotal role in improving overall health outcomes, the NOAH Program is planning to add trained developmental specialists to the primary care team. This unique approach of integrated medical, dental, and developmental health care will be a new way for NOAH to provide EPSDT visits. Evaluation of this care model will include tracking school attendance, academic achievement, and long-term health outcomes.

Available Information Resources:

The Neighborhood Outreach Action for Health (NOAH) Program Website
http://www.shc.org/content.asp?lnavid=25

Heuer S. Integrated Medical and Dental Health in Primary Care. Journal for Specialists in Pediatric Nursing 12, 1 (2007): 61-65.
http://ww2.nasbhc.org/RoadMap/Public/TA_OHHeuer.pdf

Scottsdale Healthcare Brochure: Neighborhood Outreach Action for Health
http://www.shc.org/pdf/Brochure_NOAH_1004.pdf

2008 NOAH Report – Neighborhood Outreach Action for Health: Providing access to care in economically challenging times
http://www.shc.org/pdf/NOAH_Report.pdf

SECTION III: PRACTICE EVALUATION INFORMATION

Impact/Effectiveness

How has the practice demonstrated impact, applicability, and benefits to the oral health care and well-being of certain populations or communities (i.e., reference scientific evidence, outcomes of the practice and/or evaluation results)?

The first full year of operations in the NOAH integrated medical-dental care model showed that more than 80% of the children receiving primary care at NOAH have up to date immunizations, obtained preventive well child care, and received oral health care services.

Preliminary analysis of oral health data from 232 children who participated for a full year of preventive oral health care showed that at the end of the year, 89% of children showed no evidence of new tooth decay.

Efficiency

How has the practice demonstrated cost and resource efficiency where expenses are appropriate to benefits? How has the practice demonstrated realistic and reasonable staffing and time requirements? Provide unit cost analysis or cost-benefit analysis if appropriate.

For the NOAH Program, integration of medical and dental care reduces overhead and indirect costs. The integrated electronic medical/dental record and electronic practice management system allows the front office and billing staff to utilize a single database, electronic scheduling and billing system. Front office and billing staff provide support for integrated medical and dental practices. There is one waiting room and reception area and the clinic facility supports multiple medical exam rooms and dental operatories. The health centers work under a single outpatient treatment center license with integrated practice policies and procedures.

The NOAH Program provided approximately 2,500 preventive dental visits during the school year 2008-09 at an estimated cost of $54.00 per visit. The program's emphasis on prevention of caries though concentrated oral hygiene care, dental sealants, and fluoride varnish applications delivered by an affiliated practice dental hygienist is a highly cost-effective model producing desirable oral health outcomes.

Demonstrated Sustainability

How has the practice showed sustainable benefits and/or how has the practice been sustainable within populations/communities and between states/territories? What mechanisms have been built into the practice to assure sustainability?

The two NOAH health care centers have been in operation since 1997. In 2001, NOAH medical providers began screening for oral disease and referring children for services at a local dental health care center. In 2006, a dental clinic was added to each of the two NOAH centers. As of 2009, the dental and medical clinics have provided integrated services for two years. Expansion of dental services continues as NOAH adds a teledentistry model to its innovative infrastructure and further integrates oral health into community-based and school-based/school-linked primary care.

The NOAH Program is sustained through multiple sources of revenue and funding. The integrated medical-dental care model receives reimbursement for services from the Arizona Department of Health Services Primary Care Program and the Arizona Medicaid Program. Additional funding comes from the Scottsdale Healthcare Foundation and other fundraising efforts.

Collaboration/Integration

How has the practice built effective partnerships/collaborations among various organizations and integrated oral health with other health projects and issues? What are the traditional, non-traditional, public and private partnerships/collaborations established by the practice for integration, effectiveness, efficiency and sustainability?

The NOAH Program is a model delivering integrated medical and dental health services in primary care. At each NOAH health center, the dental clinic is adjacent to the medical clinics operating

under one delivery system. NOAH medical and dental staff work together to provide coordinated care. All children seen at the medical clinic for well child care are referred to the dental clinic for a full assessment and preventive/restorative care.

Objectives/Rationale

How has the practice addressed HP 2010 objectives, met the National Call to Action to Promote Oral Health, and/or built basic infrastructure and capacity for state/territorial/community oral health programs?

The NOAH Program responds to the National Call to Action to Promote Oral Health by:

- Enhancing the oral health workforce capacity;
- Implementing strategies needed to overcome barriers in oral health disparities and improve access to care;
- Strengthening collaborations among dental, medical, and public health communities for research, education, care delivery, and policy development.

The NOAH Program addresses Healthy People 2010 objectives by:

- Reducing dental caries experience in children;
- Reducing untreated dental decay in children and adults;
- Increasing dental sealants applied to permanent molars;
- Increasing utilization of oral health system;
- Increasing preventive dental services for low-income children and adolescents;
- Increasing the number of school-based health centers with an oral health component;
- Increasing the number of community health centers with an oral health component.

The NOAH Program provides a model to build infrastructure for integrated medical and dental services in primary care.

Extent of Use Among States

Describe the extent of the practice or aspects of the practice used in other states.

The integration of an affiliated practice dental hygienist in the NOAH school-based and school-linked primary care settings was a viable strategy to integrate medical and dental services and improve access to preventive dental care. Other states have increased direct access for dental hygienists to address barriers to accessing dental care.

The American Dental Hygienists Association tracks practice laws that provide dental hygienists direct access (http://www.adha.org/governmental_affairs/downloads/direct_access.pdf). These states include: Alaska, Arizona, California, Colorado, Connecticut, Idaho, Iowa, Kansas, Maine, Massachusetts, Michigan, Minnesota, Missouri, Montana, Nebraska, New Hampshire, New Mexico, New York, Nevada, Oklahoma, Oregon, Pennsylvania, Rhode Island, South Carolina, Texas, Vermont, Washington, West Virginia, and Wisconsin.